Gateway

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The ARRL Packet-Radio Newsletter

EASTERN AREA STAFF SUPPORTS ZIP ADDRESSING

Packet-based radiogram routing dominated the issues at the National Traffic System's Eastern Area Staff (EAS) meeting October 24-25 in Virginia. Area Staffs, which comprise all NTS Officials above the section-level, serve to advise the ARRL Field Services Manager (Rick Palm, K1CE) on major National Traffic System (NTS) issues, and maintain the day-to-day long-haul functions of the NTS.

The EAS passed two significant motions recommending 1) ZIP code addressing for routing of radiograms through the emerging PBBS auto-forwarding network, and 2) a study of specific proposals made by members of the Northeast-based Radio Amateur Telecommunications Society (RATS) for NTS user interface with the system. The latter was referred to the EAS Region Packet Managers; their report is due March, 1988. (Region Packet Managers are special advisors to EAS members.)

from The ARRL Letter

NETWORK PERFORMANCE MONITORING SOFTWARE

Did you ever wonder how well your local packet-radio network is real working (or not working)? If you read the paper entitled "Performance Monitoring -or- 'I Wanna Fix It, Is It Broke?'" that was presented by Skip Hansen, WB6YMH, and Harold Price, NK6K, at the 6th ARRL Computer Networking Conference, you know that Skip and Harold were developing software to monitor received frames, accumulate data and periodically dump the data into a log file that could be used to compile statistics concerning network performance. That software is now available from CompuServe's HamNet. Its file name is MONAX2.ARC and it is written in C for the IBM PC or a compatible computer. A TNC with KISS capability is necessary to use the software.

NEW PRODUCTS FROM KANTRONICS

Just in time for the holiday season, Kantronics has announced some new hardware and software products for the packet radio amateur.

MSK MODEM

A new MSK (medium shift keying) modem for 300 and 1200 baud packet radio applications is available as a plug-in module for the Kantronics' KAM and KPC-4 TNCs. Kantronics recommends MSK over FSK for HF applications because it claims that MSK provides lower adjacent-channel interference, less bandwidth to transmit at a specified baud rate, better bit error rate (BER), more immunity to co-channel and adjacent channel interference and better fading performance than FSK. In addition, when the KAM uses the MSK mode, enhanced bar-graph tuning, utilization of both radio ports and software selectable baud rate is provided.

QPSK MODEMS

Kantronics also announced the introduction of two new plug-in QPSK (quadrature-phase-shift keying) modems. One model is available for 1200- and 2400-baud applications using the Kantronics KAM and KPC-4 TNCs, while the second model is available for 2400-baud applications using a TNC 1, TNC 2 or TNC 2 clone (AEA PK-1, AEA PK-80, Heath HD-4040 or MFJ MFJ-1270). Kantronics recommends QPSK operation for the transmission of long binary or text files on VHF and claims that QPSK has been shown to be superior in BER performance to FSK.

DUAL PORT TERMINAL PROGRAM FOR IBM PCS

KANTERM-PC is a new Kantronics terminal program especially designed for dual port applications with Kantronics KAM and KPC-4 dual port TNCs. If features five different screen configurations. Separate windows for the display of received data from each port may be stacked, side-by-side, or combined, or only the received text from one port may be displayed (port 1 or port 2 full screen display). In addition, all screen configurations include a window for transmitted data.

Other features include 37 user-loaded buffers of 254 characters each, a pop-up menu to select additional program options, active cursor keys when pop-up menu is displayed, horizontal and vertical scrolling when cursor keys are active, scroll back up to the last 256 received lines of data, and XON/XOFF status display.

TRADE IN YOUR USED TNC FOR A KAM OR KPC-4

Until January 31, 1988, Kantronics will accept used TNCs as a trade-in towards the purchase of a Kantronics KAM or KPC-4 TNC.

For more information, write to Kantronics, 1202 E 23 St, Lawrence, KS 66046 or telephone 913-842-7745.

220-MHz SPORADIC E STUDY VIA PACKET RADIO

In the November issue of QEX, editor Paul Rinaldo, W4RI, proposed that a packet radio network be established to study sporadic E and other

propagation in the 220-MHz band. Citing the automatic beaconing and listening capabilities of packet radio, W4RI suggests that "receiving stations can be set up to receive and store all beacon transmissions heard" and "if transmitting stations use a simple computer program to send the date and time in each packet transmission, receiving stations can store the data for later analysis." Such detective work could solve some of the riddles of 220-MHz propagation. Is anyone willing to take up this challenge?

TNC 2 MODIFICATION

Paul Williamson, KB5MU, has designed a modification to the TAPR TNC 2 which allows two EPROMs each containing different software to be installed simultaneously, selectable from a front panel switch. Paul wants somebody to try out his instructions before they are published. Any volunteers?

from San Diego Packet Radio Association Newsletter

220-MHz PBBS PORT FOR NOVICES

Rob Marzili, KC3BQ, has activated a 223.58 MHz port for his Skaneateles, New York (near Syracuse) KC3BQ PBBS in order that Novices may enjoy the packet radio BBS operation.

from The Upstate Packet News

(Gateway would like to publicize other Novice packet activities, so if you know of any, please let me know - WA1LOU.)

SYSOPS FOR ZIPS?

I would like to run an idea around to my fellow PBBS SYSOPs. I would like to put forth the idea that perhaps we are going in the wrong direction with our ever-expanding PBBS automatic forwarding system. The present system depends on a very well-maintained list of the other PBBSs and who you have to go through to get to them. We ask everybody to be listed in a white pages system so we can keep track of where everyone's home PBBS is. Changes are constantly being made, requiring a great deal of editing of forwarding files by many SYSOPs. Is there a different and, perhaps, a better way? Maybe.

Some of the NTS people have decided to use the US Postal System of ZIP codes to route their traffic. If this method will work for NTS, why not for regular, non-NTS, ham-to-ham messages. If a local here in the western Michigan area wishes to send a note to a buddy ham of his in Dallas, Texas, he would address it as: SP WA5ABC @ 752. A local PBBS would figure out immediately that it goes out of state, so it would be sent to Michigan's HF gateway, WA1LRL in Brighton. WA1LRL would look up 75* ZIP as going to Texas and then the Texas HF station would drop it to the local PBBS that covers the 752 ZIP. Compared to the present method, no header editing would be needed by any SYSOP to get the traffic into Texas. Any changes in an area would only be required by that area's local PBBSs. A PBBS in Florida would not need to know about any new, changed or deleted PBBS stations in western Michigan. At present, we either request a local user to specify the destination PBBS or, we, as SYSOPs, have to look it up ourselves. Sources for the ZIP codes are easy to come by, indeed, here in Grand Rapids I can call the local post office on a special line to get any ZIPs for the largest 100 cities in each state.

To address the problem for our friends in other countries, who do not have the same ZIP code system as the United States, we would put "DXxxx" in the @-field, where xxx is the international telephone exchange country number. Then, in the subject field, we would request that the originator put that country's ZIP code, whatever its format might be. Since Canada and Mexico use the same telephone Area Code system as the United States, we could either use "@ DXVE1" or "@DX514" for Montreal as an example. Another possibility would be for all United States non-NTS messages to be formatted with a "@U49508."

Maybe I have overlooked a serious flaw in this proposed system, but, more than once, I have had a local user either not have any idea who the local PBBS was for his buddy or give me a call that his buddy said was valid for a home PBBS, but I am unable to find any record of it. In addition, we have WA1LRL in Michigan, WØRLI in California, etc., so the number in the call sign can not be depended upon to locate a station.

One more plus: check your existing forwarding file and see how much simpler it would be with ZIP code routing. Once the message came to stop at a PBBS, we might have a minor modification to the PBBS's code to strip the @ from the message header and then that PBBS could route it per local user tables.

If you have any opinion, please feel free to send it back to western Michigan. If your existing file has me in it, fine, if not route to WA1LRL or W9ZRX. And, if the ZIP code system were operational, use WA8URE @ 49508!

from Tom Bosscher, WA8URE

BEWARE OF MEGA-PACKETS

I have been noticing a whole lot of "Mega-Packets" lately --- hand typed packets which are longer than 80 or so characters --- many of them as high as 255 characters. I suspect those who are originating them do not realize what is going on.

All modems have a bit error rate (BER) which is how many bits can be sent (on the average) before an error occurs. When an error occurs, we have to retry. Other factors that contribute to the BER in the real world are propagation and collisions. It is fairly easy to calculate the size of a packet (7 bytes X 2 for call signs, + 1 control byte, +s the data, + a 2-byte checksum). Assuming BER is a constant, an 80-character packet consists of 97 bytes or 776 bits, while a 255-character Mega-Packet consists of 272 bytes or 2176 bits. As a result, a Mega-Packet is 2.8 times more likely to get damaged before reaching its destination. So, not only does it take 2.8 times as long to transmit, but it will (on the average) take 2.8 more tries or something like 7.84 times as much network time to transmit as it would if

the message was broken into three saner sized packets.

Also, these quick calculations do not take into account the actual value for BER. If the BER is 0.05% (1 in 2000), the 2716 bit Mega-Packet will likely never get through. Mathematics aside, the Flow parameter in the TNC allows very comfortable QSO type operation in a full-duplex environment if you just hit return after each 80-column line. If your friend is using a shorter screen display, try to hit return more often to accommodate him. If you cannot remember to hit return after each line, at least set Paclen to a lower value (say 75 or so) --- then the whole network will be more efficient and we will be able to share the channel more effectively; everything will work better.

from Lynn Taylor, WB6UUT, via
San Diego Packet Radio Association Newsletter

WA7MBL: NOT A TRAFFIC KILLER!

In our description of the KT command in Gateway, Volume 4, Number 3, it is implied that all PBBS software supports the KT command, when, in fact, it is supported by WØRLI PBBS software, but is not supported by WA7MBL PBBS software (version 3 and higher).

TPRS ADDRESS CORRECTION

The address for the Texas Packet Radio Society (TPRS) as published in Gateway, Volume 4, Number 1, was wrong. The correct address is:

Texas Packet Radio Society
PO Box 831566
Richardson, TX 75083-1566

ZIP CODE DIRECTORY

To supplement the ongoing study and discussion concerning the use of ZIP codes to route NTS traffic via the packet radio network, Gateway presents the following list of ZIP code 2-digit prefixes (the first two digits of a ZIP code). The first list is sorted alphabetically by location; the second list is sorted numerically by ZIP code prefix.

List 1. Alphabetically By Location

Location	ZIP Prefix
Alabama	35, 36
Alaska	99
Arizona	85, 86
Arkansas	72, 73
California	90, 91, 92, 93, 94, 95
Colorado	80, 81
Connecticut	06
Delaware	19
District of Columbia	20
Florida	32, 33, 34
Georgia	30, 31
Hawaii	96
Idaho	83
Illinois	60, 61, 62
Indiana	46, 47
Iowa	50, 51, 52
Kansas	66, 67
Kentucky	40, 41, 42
Louisiana	70, 71
Maine	04
Maryland	20, 21
Massachusetts	01, 02
Michigan	48, 49
Minnesota	55, 56
Mississippi	38, 39
Missouri	63, 64, 65
Montana	59
Nebraska	68, 69
Nevada	89
New Hampshire	03
New Jersey	07, 08
New Mexico	87, 88
New York	09, 10, 11, 12, 13, 14
North Carolina	27, 28
North Dakota	58
Ohio	43, 44, 45
Oklahoma	73, 74
Oregon	97
Pennsylvania	15, 16, 17, 18, 19
Puerto Rico	00
Rhode Island	02
South Carolina	29
South Dakota	57
Tennessee	37, 38
Texas	75, 76, 77, 78, 79
Utah	84
Vermont	05
Virginia	22, 23, 24
Washington	98, 99
West Virginia	25, 26
Wisconsin	53, 54
Wyoming	82

List 2. Numerically By ZIP Prefix

ZIP Prefix	Location
00	Puerto Rico
01	Massachusetts
02	Massachusetts and Rhode Island
03	New Hampshire
04	Maine
05	Vermont
06	Connecticut
07, 08	New Jersey
09-14	New York
15-18	Pennsylvania
19	Delaware and Pennsylvania
20	District of Columbia and Maryland
21	Maryland
22-24	Virginia
25, 26	West Virginia
27, 28	North Carolina
29	South Carolina
30, 31	Georgia
32-34	Florida
35, 36	Alabama
37	Tennessee
38	Mississippi and Tennessee
39	Mississippi
40-42	Kentucky
43-45	Ohio
46, 47	Indiana
48, 49	Michigan
50-52	Iowa
53, 54	Wisconsin
55, 56	Minnesota
57	South Dakota
58	North Dakota
59	Montana
60-62	Illinois
63-65	Missouri
66, 67	Kansas
68, 69	Nebraska

70, 71	Louisiana
72	Arkansas
73	Arkansas and Oklahoma
74	Oklahoma
75-79	Texas
80, 81	Colorado
82	Wyoming
83	Idaho
84	Utah
85, 86	Arizona
87, 88	New Mexico
89	Nevada
90-95	California
96	Hawaii
97	Oregon
98	Washington
99	Alaska and Washington

Note that the following locations share the same 2-digit prefix:

Location	Shared Prefix
Alaska and Washington	99
Arkansas and Oklahoma	73
Delaware and Pennsylvania	19
District of Columbia and Maryland	20
Massachusetts and Rhode Island	02
Mississippi and Tennessee	38

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